

CLAIMS:

1. A perpendicular magnetic recording system comprising:
a perpendicular magnetic recording disk including magnetic recording tracks;
a perpendicular magnetic recording head including a perpendicular write pole movable in an arc across the perpendicular magnetic recording disk; and
means for sequentially writing with the write pole onto adjacent magnetic recording tracks of the perpendicular magnetic recording disk to thereby substantially eliminate a skew angle effect.
2. The perpendicular magnetic recording system of Claim 1, wherein the means for sequentially writing comprises means for moving the write pole radially outward across at least a portion of the disk.
3. The perpendicular magnetic recording system of Claim 2, wherein the write pole is moved radially outward across substantially all of the magnetic recording tracks of the disk during the sequential writing.
4. The perpendicular magnetic recording system of Claim 2, wherein the write pole is aligned at a first compensation angle A_1 with respect to the magnetic recording tracks when the write pole is located over an inward portion of the disk, the write pole is aligned at a second compensation angle A_2 with respect to the magnetic recording tracks when the write pole is located over an outward portion of the disk, the first compensation angle A_1 is from about 5 to about 15 degrees, and the second compensation angle A_2 is greater than about 1 degree.
5. The perpendicular magnetic recording system of Claim 4, wherein the first compensation angle A_1 is from about 6 to about 12 degrees, and the second compensation angle A_2 is from about 2 to about 6 degrees.
6. The perpendicular magnetic recording system of Claim 1, wherein the means for sequentially writing comprises means for moving the write pole radially inward across at least a portion of the disk.
7. The perpendicular magnetic recording system of Claim 6, wherein the write pole is moved radially inward across substantially all of the magnetic recording tracks of the disk during the sequential writing.

8. The perpendicular magnetic recording system of Claim 6, wherein the write pole is aligned at a first compensation angle A_1 with respect to the magnetic recording tracks when the write pole is located over an outward portion of the disk, the write pole is aligned at a second compensation angle A_2 with respect to the magnetic recording tracks when the write pole is located over an inward portion of the disk, the first compensation angle A_1 is from about 5 to about 15 degrees, and the second compensation angle A_2 is greater than about 1 degree.

9. The perpendicular magnetic recording system of Claim 8, wherein the first compensation angle A_1 is from about 6 to about 12 degrees, and the second compensation angle A_2 is from about 2 to about 6 degrees.

10. The perpendicular magnetic recording system of Claim 1, wherein the means for sequentially writing comprises means for moving the write pole radially outward across a portion of the disk and moving the write pole radially inward across another portion of the disk.

11. The perpendicular magnetic recording system of Claim 10, wherein the write pole is moved radially outward to a zero skew angle location on the disk during the sequential writing.

12. The perpendicular magnetic recording system of Claim 10, wherein the write pole is moved radially inward to a zero skew angle location on the disk during the sequential writing.

13. The perpendicular magnetic recording system of Claim 10, wherein the write pole is moved radially outward and radially inward to a zero skew angle location on the disk during the sequential writing.

14. A perpendicular magnetic recording system comprising:
a perpendicular magnetic recording disk including magnetic recording tracks; and

a perpendicular magnetic recording head including a perpendicular write pole movable in an arc across the perpendicular magnetic recording disk, wherein the perpendicular write pole is aligned at compensation angles with respect to the magnetic recording tracks and the compensation angles remain greater than or equal to zero degrees when the write pole writes onto the magnetic recording tracks as the write pole moves in the arc across the magnetic recording tracks.

15. The perpendicular magnetic recording system of Claim 14, wherein the compensation angles range from a minimum of zero degrees to a maximum of 15 degrees.

16. The perpendicular magnetic recording system of Claim 14, wherein the compensation angles range from a minimum of 2 degrees to a maximum of 12 degrees.

17. The perpendicular magnetic recording system of Claim 14, wherein the write pole is aligned at a first compensation angle A_1 with respect to the magnetic recording tracks when the write pole is located over an inward portion of the disk, the write pole is aligned at a second compensation angle A_2 with respect to the magnetic recording tracks when the write pole is located over an outward portion of the disk, the first compensation angle A_1 is from about 5 to about 15 degrees, and the second compensation angle A_2 is greater than about 1 degree.

18. The perpendicular magnetic recording system of Claim 17, wherein the first compensation angle A_1 is from about 6 to about 12 degrees, and the second compensation angle A_2 is from about 2 to about 6 degrees.

19. The perpendicular magnetic recording system of Claim 14, wherein the write pole is aligned at a first compensation angle A_1 with respect to the magnetic recording tracks when the write pole is located over an outward portion of the disk, the write pole is aligned at a second compensation angle A_2 with respect to the magnetic recording tracks when the write pole is located over an inward portion of the disk, the first compensation angle A_1 is from about 5 to about 15 degrees, and the second compensation angle A_2 is greater than about 1 degree.

20. The perpendicular magnetic recording system of Claim 19, wherein the first compensation angle A_1 is from about 6 to about 12 degrees, and the second compensation angle A_2 is from about 2 to about 6 degrees.

21. The perpendicular magnetic recording system of Claim 14, wherein the write pole comprises a side edge and a trailing edge and an aspect ratio of the length of the side edge to the length of the trailing edge is greater than 2:1.

22. The perpendicular magnetic recording system of Claim 21, wherein the aspect ratio is from about 5:1 to about 10:1.

23. The perpendicular magnetic recording system of Claim 21, wherein the write pole has a rectangular cross section.

24. The perpendicular magnetic recording system of Claim 14, wherein the write pole sequentially writes to adjacent magnetic recording tracks of the disk.

25. A method of magnetically recording data, the method comprising:
providing a perpendicular magnetic recording disk including magnetic recording tracks;

providing a perpendicular magnetic recording head including a perpendicular write pole movable in an arc across the perpendicular magnetic recording disk; and

sequentially writing with the write pole onto adjacent magnetic recording tracks of the perpendicular magnetic recording disk to thereby substantially eliminate a skew angle effect.

26. The method of Claim 25, wherein the perpendicular write pole is aligned at a compensation angle with respect to the magnetic recording tracks, and the compensation angle remains greater than or equal to zero degrees when the write pole writes onto the magnetic recording tracks as the write pole moves in the arc across the magnetic recording tracks.

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